

IN THE CLAIMS:

Please amend the claims as follows:

1. (Currently amended): A system for searching a relational database of biological information, said system comprising:
 - a server computer comprising a relational database of biological information and a first module for receiving a structured language query and transferring said query to a search engine;
 - a database graph generation module associated with said search engine configured to ~~generating~~ generate a database graph; and
 - a joins module configured to create joins between relational database tables based on said database graph, wherein said server computer runs a structured query language (SQL) search on said relational database based upon said joins.
2. (Original): The system of Claim 1, comprising a second module that receives the results of said SQL search and translates said search results into a structured language.
3. (Currently amended): The system of Claim 2, wherein said structured ~~query~~ language query is sent to a client computer.
4. (Original): The system of Claim 1, wherein said first module comprises a user interface that provides a list of searchable fields within said database.
5. (Original): The system of Claim 1, wherein said first module comprises a viewer module configured to present search results in a graphical format.
6. (Currently amended): The system of Claim ~~[[1]]~~ 2, wherein said structured language comprises the extensible markup language (XML), JavaScript, or the hypertext markup language (HTML).
7. (Currently amended): A computer system search engine for searching a relational database of biological information, comprising:

Serial No.: 09/938,714

a relational database of biological information comprising tables of biological data;

a search module configured to receive a structured language query and convert said structured language query into a search statement for querying said relational database of biological information; and

a joins module configured to determine how to join said tables of biological data in order to provide the results of said query.

8. (Currently amended): The search engine of Claim 7, further comprising ~~in~~ an XML send/receive Module for sending and receiving information to and from a Search Panel Module stored on a Client Computer.
9. (Currently amended): The search engine of Claim 8, wherein said XML send/receive Module receives an XML structured query from ~~[[a]]~~ said Client Computer, and delivers said XML structured query to a search tool module.
10. (Currently amended): The search engine of Claim 7, ~~wherein said further comprising a~~ Database Graph Generation Module which creates a graph of a user-selected database.
11. (Currently amended): The search engine of Claim 10, wherein said joins module is a Create Joins Module which utilizes said database graph to create joins between said database tables.
12. (Original): The search engine of Claim 11, wherein said Create Joins Module calculates the shortest path between two database nodes thereby optimizing the retrieval of requested database data.
13. (Original): The search engine of Claim 7, further comprising a SQL statement generation module for translating said XML structured query into an SQL statement and sending said SQL statement to said Relational Database.
14. (Currently amended): A method for querying a relational database, comprising the steps of:

sending a structured language database query to a search engine;

Serial No.: 09/938,714

parsing the relational database and creating a database graph;
creating ~~the~~ correct joins between nodes corresponding to said query;
translating said structured language database query into an SQL
statement incorporating said joins; and
sending said SQL ~~state~~ statement to ~~[[a]]~~ said Relational Database.

15. (Original): The method of Claim 14, including the further step of optimizing said joins by calculating the shortest path between the nodes specified in said query.
16. (Currently amended): The method of Claim 15, including the further ~~step~~ steps of receiving requested results from said database ~~search~~, translating said results into said structured ~~data~~ language and returning said results.
17. (Original): The method of Claim 16, including the further step of displaying said search results.
18. (Currently amended): The method of Claim ~~[[18]]~~ 16, wherein said structured language is the Extensible Markup Language.

Please add the following new claims:

19. (New): A system for searching a relational database of biological information, said system comprising:
 - a server computer comprising a relational database of biological information and a first module for receiving a structured language query and transferring said query to a search engine;
 - a database graph generation module associated with said search engine configured to generate a database graph by parsing said relational database; and
 - a joins module configured to create optimized joins between relational database tables by utilizing said database graph to calculate the shortest path between nodes specified in said query, wherein said

Serial No.: 09/938,714

server computer runs a structured query language (SQL) search on said relational database based upon said joins.

20. (New): A computer system search engine for searching a relational database of biological information, comprising:

a relational database of biological information comprising tables of biological data;

a search module configured to receive a structured language query and convert said structured language query into a search statement for querying said relational database of biological information;

a database graph generation module which creates a graph of said database; and

a joins module configured to create optimized joins between said tables of biological data by utilizing said graph to calculate the shortest path between said tables specified in said query, said optimized joins being incorporated into said search statement by said search module.

21. (New): A computer program product comprising computer-executable instructions embodied in a computer-readable medium for performing steps comprising:

sending a structured language database query to a search engine;

parsing a relational database and creating a database graph;

creating correct joins between nodes corresponding to said query;

translating said structured language database query into an SQL statement incorporating said correct joins; and

sending said SQL statement to said relational database.